DOWNSTREAM ANALYSIS
for

TALL CHIEF COUNTRY CLUB
RESIDENTIAL PLAT PROJECT

Location:
1313 W. SNOQUALMIE RIVER ROAD
FALL CITY, WA 98024

DECEMBER 23, 2004
Revised March 22, 2007

By

Hagenson Consultants, LLC
Seattle, Washington 98136

HC Job No. 200422

K.C Project # L04P0032

L12V0002

VII. APPENDIX

OFF-SITE ANALYSIS
(DOWNSTREAM DRAINAGE ANALYSIS)

A review of the County's Storm and Surface Water Comprehensive Plan shows that the study area lies within the both the Patterson Creek basin and the Snoqualmie River Basin.

Patterson Creek Basin

Drainage from the on site hillside is carried in onsite gullies to the valley floor at several locations spaced along the hillside toe. There, it is concentrated in the slough (wetland A) and is thought to flow towards Patterson Creek, some 600 to 800 feet east of the SE property corner. Paterson Creek, in turn, joins the Snoqualmie River within 1000 feet northeast of this point.

While K.C. published basin limits support this conclusion, Country Club personnel and locals with many years of experience in the area, report that Patterson Creek floods often over bank and send water northward through wetland A onto the Country Club. Floodplain delineations show that this area is within the limits of the common floodplain for both Paterson Creek and the Snoqualmie River. While this condition may exist during high flow events, the preponderance of lower flows may tend to drain toward Patterson Creek, partly due to it's very close proximity to the SE corner of the Site. Nonetheless, arguments may be made that the County basin delineation is suspect, and all of the site flows are generally discharged towards the Snoqualmie basin, to the north and east.

Visual reconnaissance of the downstream system revealed no visible indications of scour, flooding, overtopping, or sedimentation, although frequent flooding normally brings some silt deposition. A review of the County's I-map system and project wetland delineations indicated Wetland A to be a large, Class I wetland, partially onsite and partially offsite. Drainage complaints collected for the project do not indicate any complaints relevant to Patterson Creek.

Snoqualmie River

Drainage from the project and portions of the upstream/offsite hillside are collected in the Country Club golf course wetlands C, D and F. Club personnel report that old mapping indicates these wetlands are connected by a named creek. Geomorphologically, the hillside/valley relationship is likely created by local seismic faults, and this ancient creek bed followed the hillside toe, much the same as it does today.

A series of small channels and a 36" cmp culvert connect these onsite wetlands and discharge runoff to the north, in a channel which had historically been dredged and maintained, but which has recently been neglected. This channel runs due north through the abutting slough for some 1700' to a point where it crosses under the Main St. E. Bridge.

Visual reconnaissance of the downstream system revealed no visible indications of scour, flooding, overtopping, but local deposition of silts and sediment is causing the ditch to aggrade (fill in). A review of the County's I-map system and project wetland delineations indicated Wetland to the north of the site to be a large, Class I wetland. Drainage complaints collected for the project are included in this report in synopsis form. Many of the collected complaints deal with conditions on the opposite (right) bank.

Upstream drainage is currently directed in a sheet flow fashion through heavily wooded and moderately steep terrain toward the valley floor. In several locations, this drainage has concentrated onsite and has created gullies with evidence of sour and/or erosion.

A developed plat exists west of the westerly boundary of the project. However, it lies west of the ridge, such that the plat's drainage is in a separate basin from that of the project.

OFF-SITE ANALYSIS DRAINAGE SYSTEM TABLE
Surface Water Design Manual, Core Requirement #2

Basin: SNOQUALAMIE **Subbasin Name:** JANICKE SLOUGH **Subbasin Number:**

Symbol	Drainage Component Type, Name, and Size	Drainage Component Description	Slope	Distance from site discharge	Existing Problems	Potential Problems	Observations of field inspector resource reviewer, or resident
see map	Type: sheet flow, swale, stream, channel, pipe, pond; Size: diameter, surface area	drainage basin, vegetation, cover, depth, type of sensative area, volume	%	1/4 mi = 1,320 ft	constrictions, under capacity, ponding, overtopping, flooding, habitat or organism destruction, scouring, bank sloughing, sedimentation, incision, other erosion		tributary area, likelihood of problem, overflow pathways, potential impacts
C	SITE DISCHARGE			0			
C-D	SLOUGH DITCH	HEAVY VEGETATION	<1%	1700	DEPOSITION	AGGRADATION/ DEPOSITION	NEEDS DREDGING.
D	BRIDGE MAIN ST E	" "	"	1700.	"	"	"

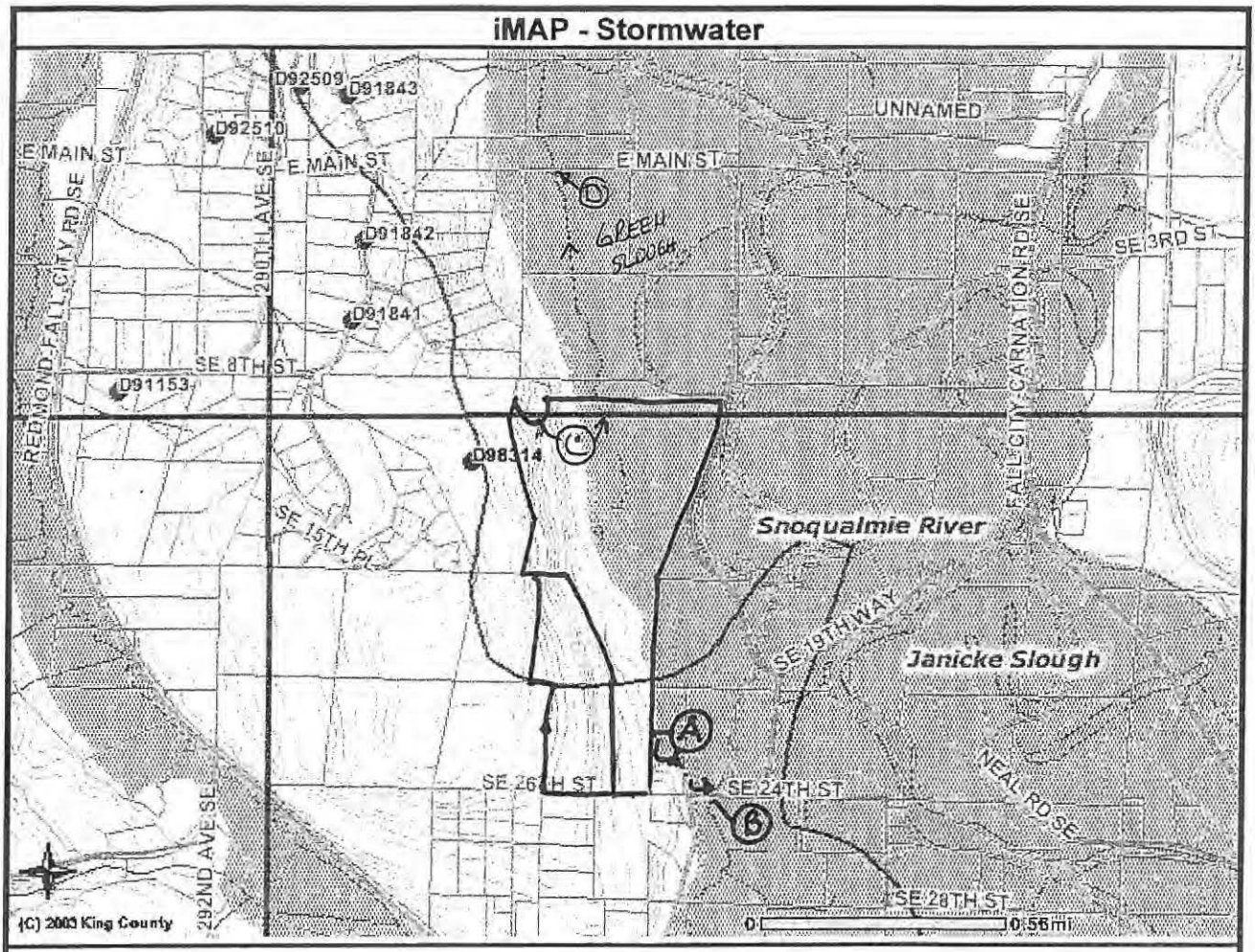
OFF-SITE ANALYSIS DRAINAGE SYSTEM TABLE
Surface Water Design Manual, Core Requirement #2

Basin: SNOQUALMIE **Subbasin Name:** PATERSON CREEK **Subbasin Number:**

Symbol	Drainage Component Type, Name, and Size	Drainage Component Description	Slope	Distance from site discharge	Existing Problems	Potential Problems	Observations of field inspector resource reviewer, or resident
see map	Type: sheet flow, swale, stream, channel, pipe, pond; Size: diameter, surface area	drainage basin, vegetation, cover, depth, type of sensitive area, volume	%	1/4 mi = 1,320 ft	constrictions, under capacity, ponding, overtopping, flooding, habitat or organism destruction, scouring, bank sloughing, sedimentation, incision, other erosion		tributary area, likelihood of problem, overflow pathways, potential impacts
A	HILLSIDE	DRAINS TO SLOUGH		0	N/A		
A-B	SLOUGH	ALLONG HILLSIDE	<1%	600'	NONE	DEPOSITION	
B	PATERSON CREEK						

DOWNSTREAM MAP

King County | Home | News | Services | Comments | Search



Legend

- Thomas Brothers Map Page
- SWS Drainage Studies
- SWS Neighborhood Drainage Projects
- SWS Regional Stormwater Facilities
- SWS Residential Stormwater Facilities
- SWS Commercial Stormwater Facilities
- County Boundary
- King County Drainage Basins
- Streets
- (cont)
- Highway
- Arterials
- Local
- Parcels
- Contours - 20 ft.
- 100 Year Floodplain
- Lakes and Large Rivers
- Streams
- Incorporated Area

Task 1 (2005 KCSWM Pg 2-10) Study Area Definition and Maps

The study area extends from approximately 500 feet upstream to 1/3 mile downstream from the site as shown on the included mapping. A parcel report and map are included as well as Imap topography, Imap drainage complaint mapping, Imap Sensitive Areas Mapping, Imap Hydrographic Information mapping, and appropriate legends.

Task 2 Resource Review

- Basin Plans- A check of DNR web publishing lists indicates there is no Snoqualamie River nor Patterson Creek Basin Plan.
- Drainage Studies- The South Fork Snoqualamie River Feasibility Report was pre-empted prior to completion and studied flooding remedies in the North Bend area.
- Basin Reconnaisance Summary Reports– The Patterson Creek Basin Reconnaisance Report describes land use, geology and stream habitat. There are no apparent project specific relevant findings.
- Critical Drainage Areas –Imap, FEMA and project specific surveys indicate that portions of the site lie within the Snoqualamie 100 year floodplain
- FEMA maps – A review of FEMA mapping indicates the site lies within the 100 year floodplain.
- Other Offsite Analysis Reports- A check with DDES Records Staff indicates there are none for this area
- Sensitive Areas Folio – Imap Sensitive Area Mapping is included herewith and there are floodplains, wetlands, steep slope/Landslide hazards, and aquifer recharge areas noted within the study area.

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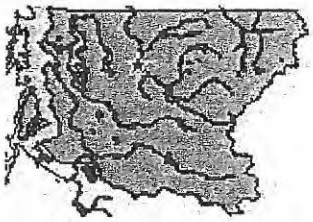
PARCEL REPORT

Districts and Development Conditions

for Parcel number: **0524079002**



BY LAW THIS INFORMATION MAY NOT BE USED FOR COMMERCIAL PURPOSES.

Administrative Districts and Areas

Address	**1313 WEST SNOQUALMIE RIVER RD SE**
Jurisdiction	**King County**
Zipcode	**98024**
King County Council District (COUNCIL IN TRANSITION)	Council District:**3** Council Member: **Kathy Lambert** Phone: **(206) 296-1003** **Web site**
School District	**Snoqualmie Valley #410**
Fire District	**King County Fire Protection District No. 27**
Water District	None
Sewer District	None
Water and Sewer District	None
Water Service Planning Area	**Fall City Water District**
Tribal Lands	No

Planning Designations

King County Zoning	**RA-10** (split zoning, check a map to verify) **A-35** (split zoning, check a map to verify) **RA-5-SO**
Comprehensive Plan Land Use	**rr**
Urban Growth Area	**Rural**
Community Planning Area	**Snoqualmie**
Unincorporated Area Council	None
P-Suffix Conditions	None
Kroll Map Page	**B35**
Thomas Guide Map Page	**599**
Agricultural Production District	No
Forest Production District	No
Roads MPS Zone	**143**

Transportation Concurrency Zone	**360**

Environmental Areas

Drainage Basin	**Snoqualmie River** and **Patterson Creek**
Rural Clearing Limits Apply	**Yes** (Verify that the RA-* Zoning is valid)
Watershed Name	**Snoqualmie River** and **Snoqualmie River**
WRIA Name	**Snohomish** and **Snohomish**
WRIA Number	**7** and **7**
Wetland	ID = **5382B** Rating = **4 (NWI)** ID = **5384B** Rating = **4 (NWI)** ID = **5339** Rating = **2**
100-Year Flood Plain	**Yes**
Coal Mine Hazards	None mapped
Erosion Hazards	**Yes**
Landslide Hazards	**Yes**
Seismic Hazards	**Yes**
Critical Aquifer Recharge Area	**Class 2**

DDES Permitting Information
Assessor Property Characteristics Report
Zoom to Parcel - iMAP (High Speed Internet Connection)
Zoom to Parcel - Parcel Viewer (All Internet Connections)

This report was generated: 3/22/2007 3:59:22 PM

Enter a 10 digit Parcel Number:

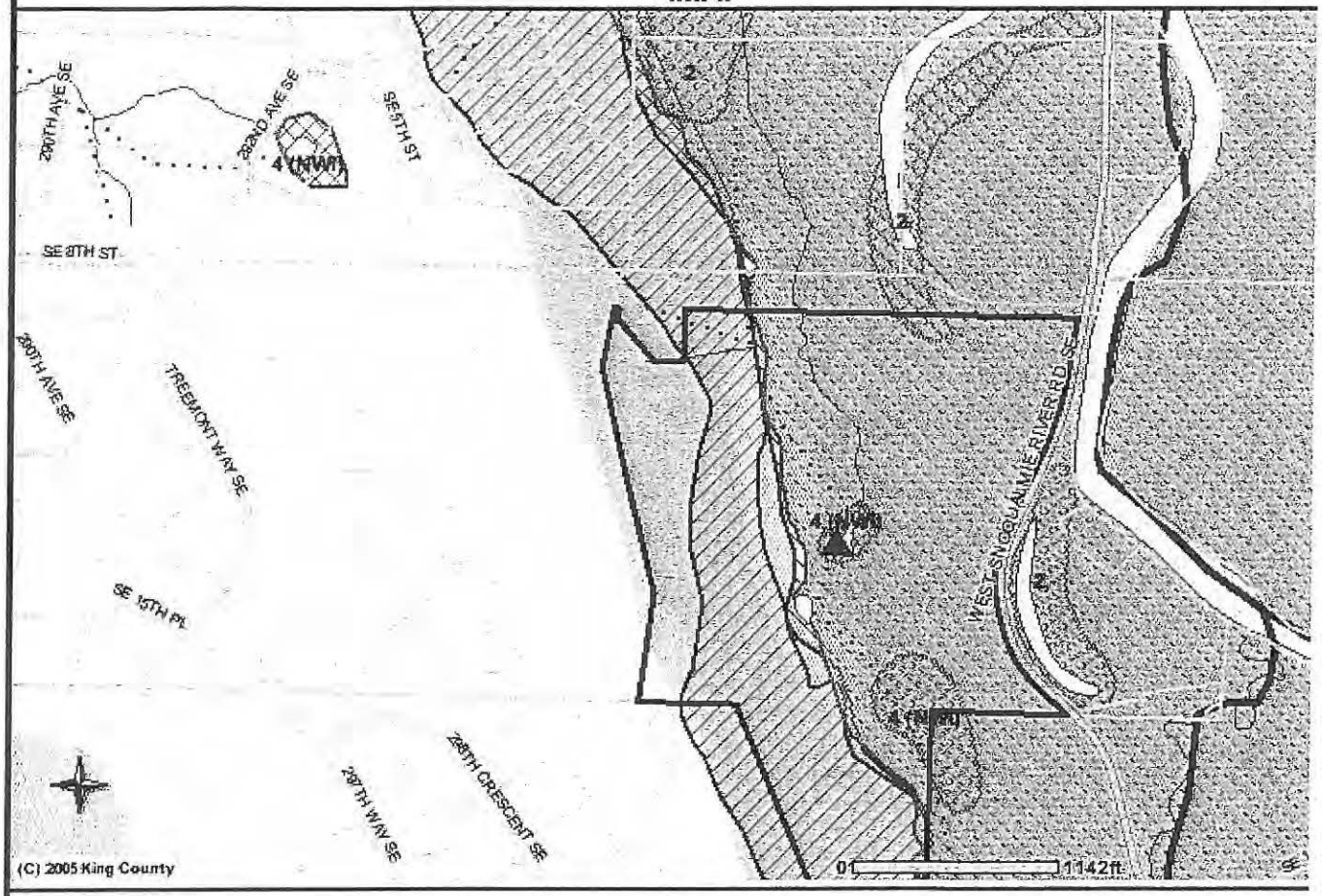
or Enter an address:

Search

King County

SENSITIVE AREA

iMAP



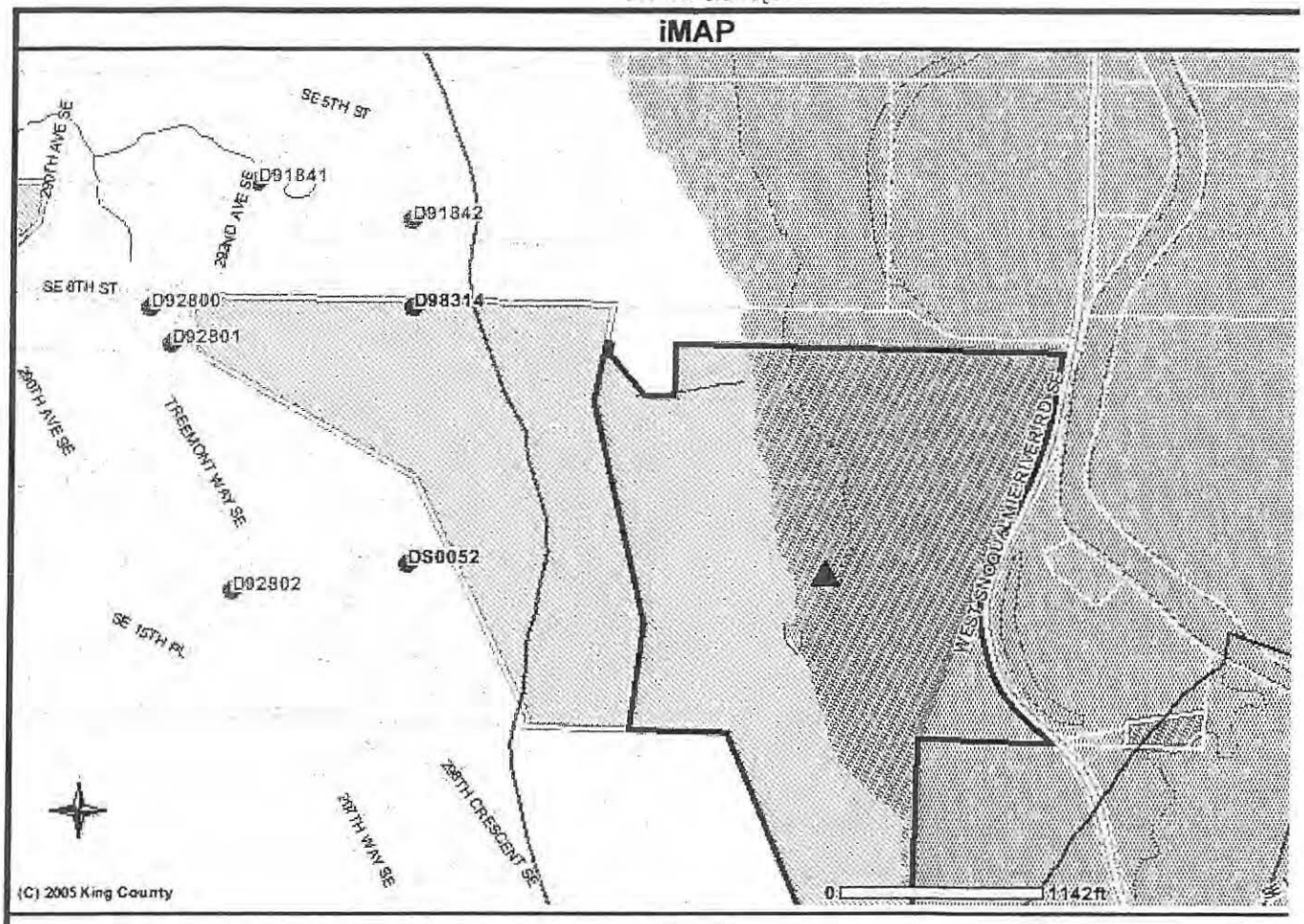
Legend

- Highlighted Feature
- County Boundary
- Mountain Peaks
- Highways
- Incorporated Area
- Streets
  - Highway
  - Arterials
  - Local
- Parcels
- SAO Stream
- Class 1
- (cont)
- Class 2 Perennial
- Class 2 Salmonid
- Class 3
- Unclassified
- Lakes and Large Rivers
- Streams
- 100 Year Floodplain
- SAO Wetland
- SAO Landslide
- SAO Seismic
- SAO Erosion
- Critical Aquifer Recharge Area
- (cont)
- Category 1
- Category 2
- Category 3

Date: 3-22-2007 Source: King County iMAP - Sensitive Areas (http://www.metrokc.gov/GIS/iMAP)

King County

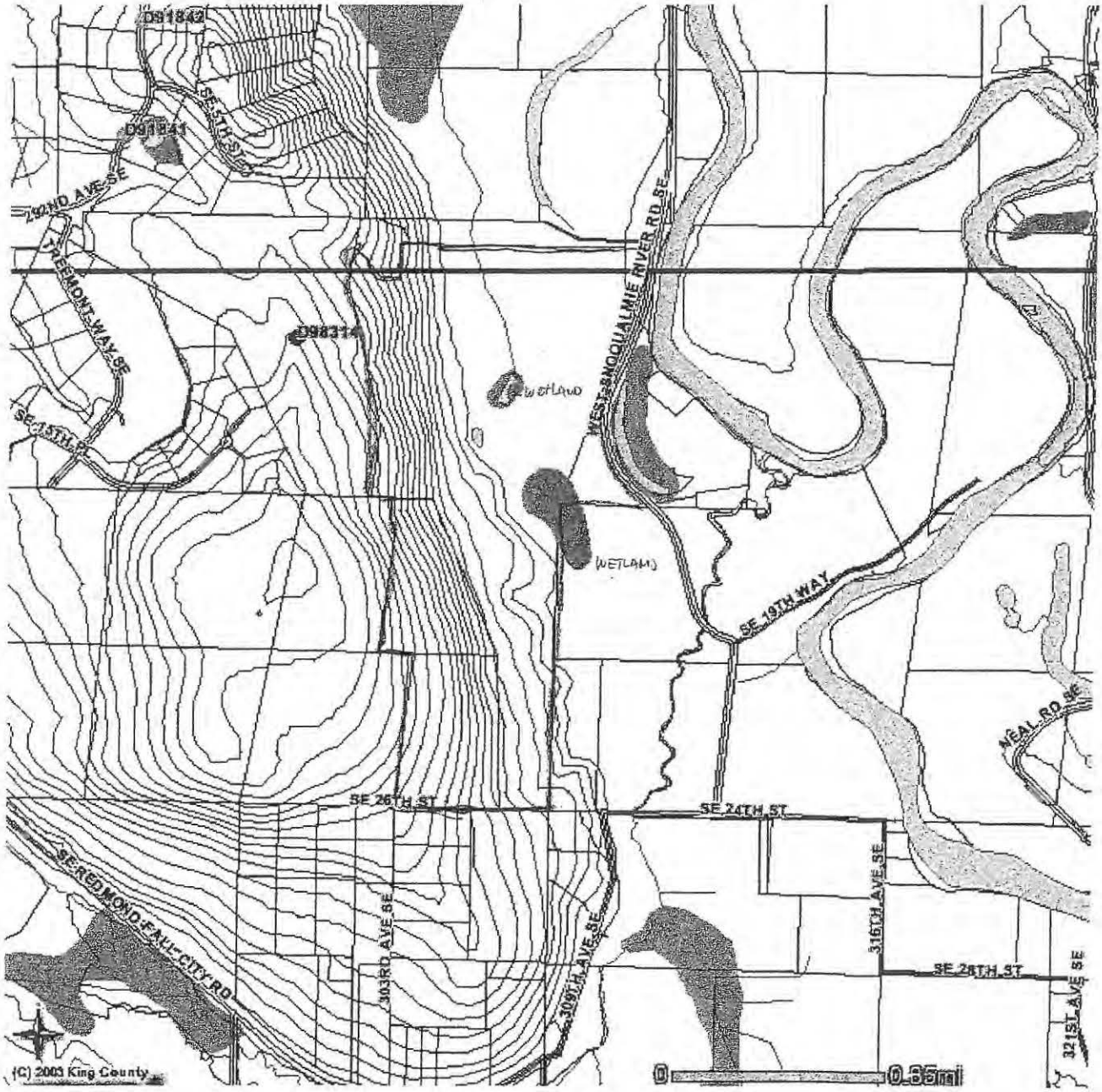
STORMWATER



Legend

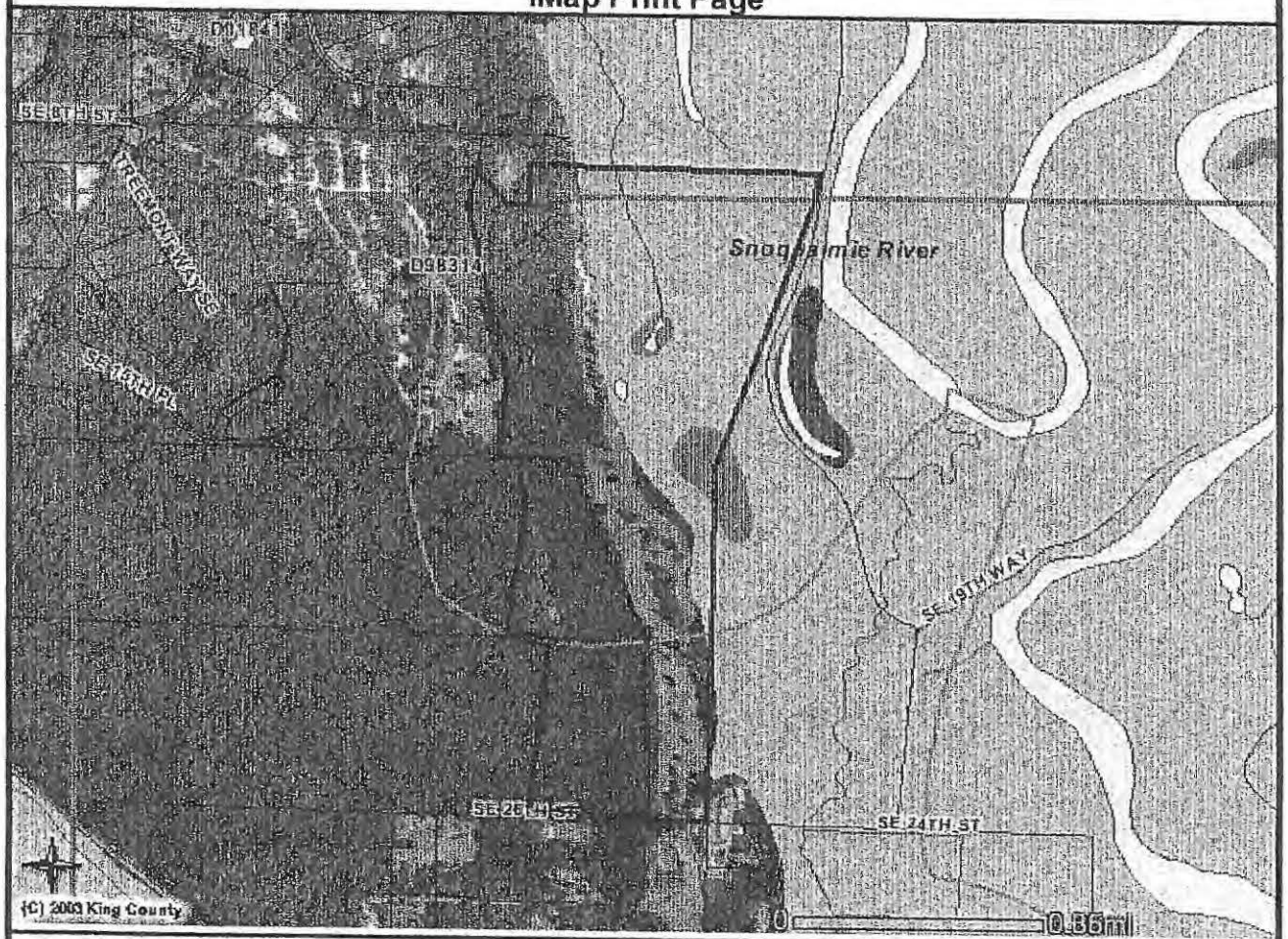
- Highlighted Feature
- County Boundary
- Mountain Peaks
- Drainage Studies
- Neighborhood Drainage Projects
- Regional Stormwater Facilities
- Residential Stormwater Facilities
- Commercial Stormwater Facilities
- Highways
- King County Drainage Basins
- Streets
- (cont)
- Highway
- Arterials
- Local
- Parcels
- 100 Year Floodplain
- Lakes and Large Rivers
- Streams
- Drainage Complaints
- Incorporated Area

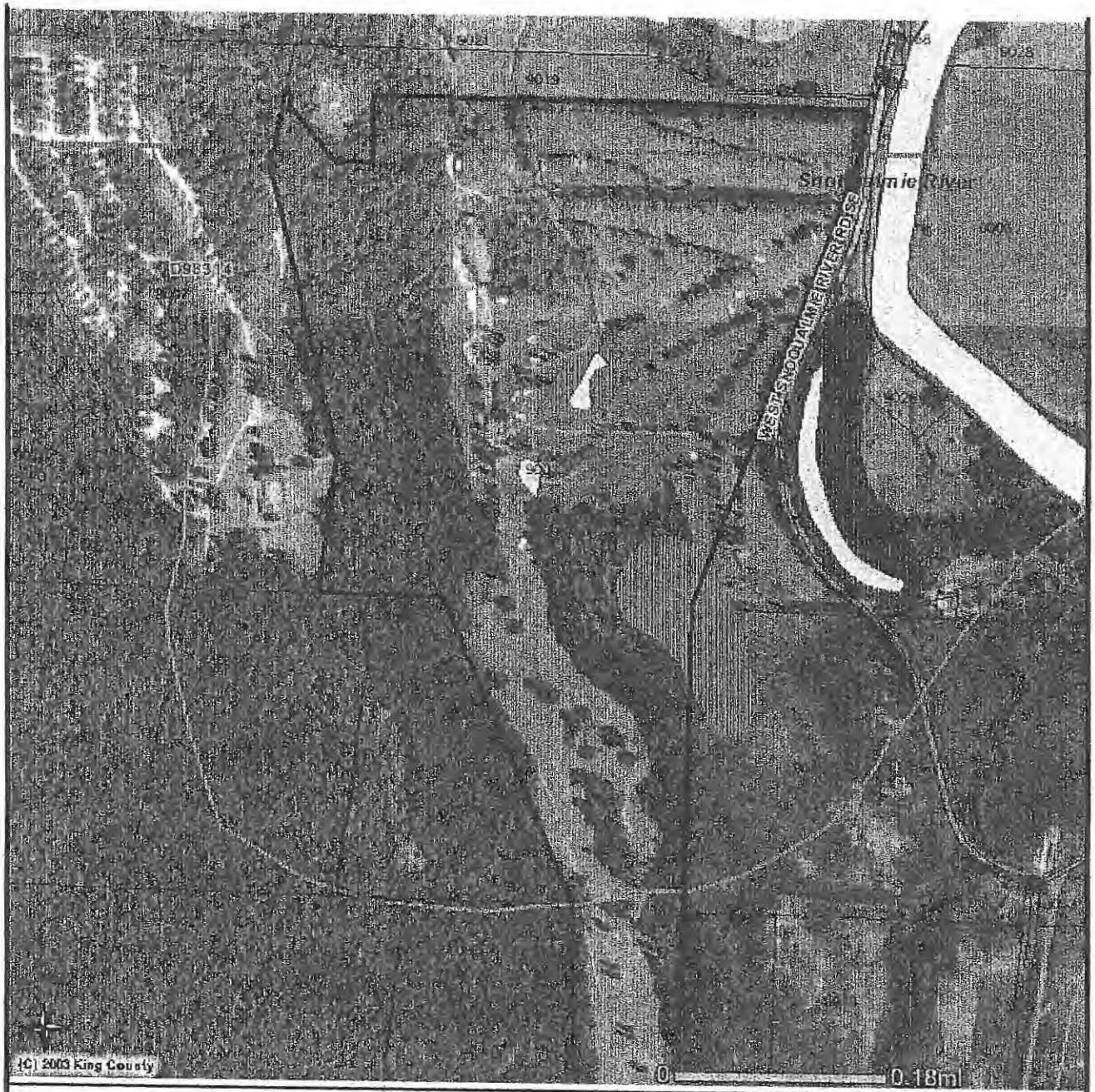
Date: 3-22-2007 Source: King County iMAP - Stormwater (http://www.metrokc.gov/GIS/iMAP)


D91842
D91841
D98314
SE 51ST ST
142ND AVE SE
TREMONT WAY SE
SE 45TH PL
WEST SNOQUALMIE RIVER RD SE
wetland
WETLAND
SE 19TH WAY
NEAL RD SE
SE 26TH ST
SE 24TH ST
316TH AVE SE
SE 28TH ST
321ST AVE SE
303RD AVE SE
309TH AVE SE
SE REDMOND-FALL CITY RD
(C) 2003 King County
0
0.85mi

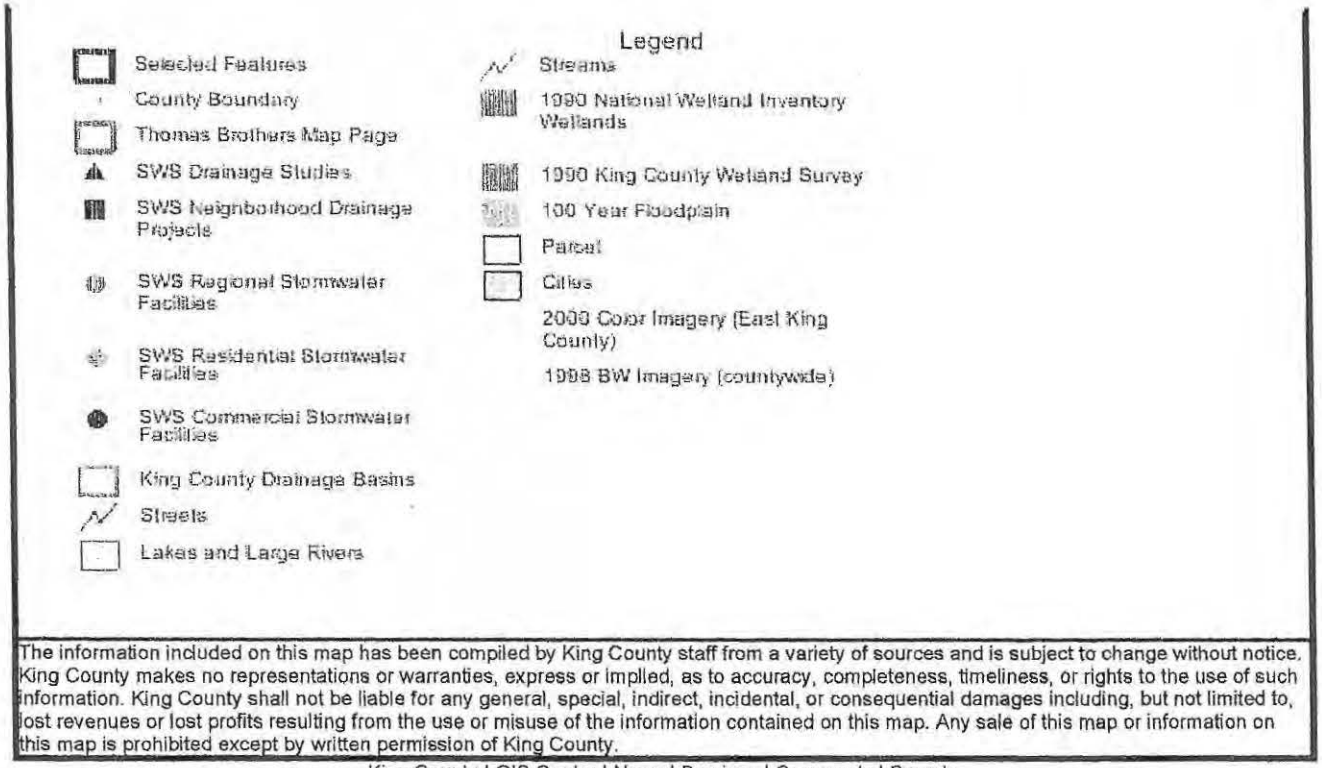
King County Home News Services Comments Search

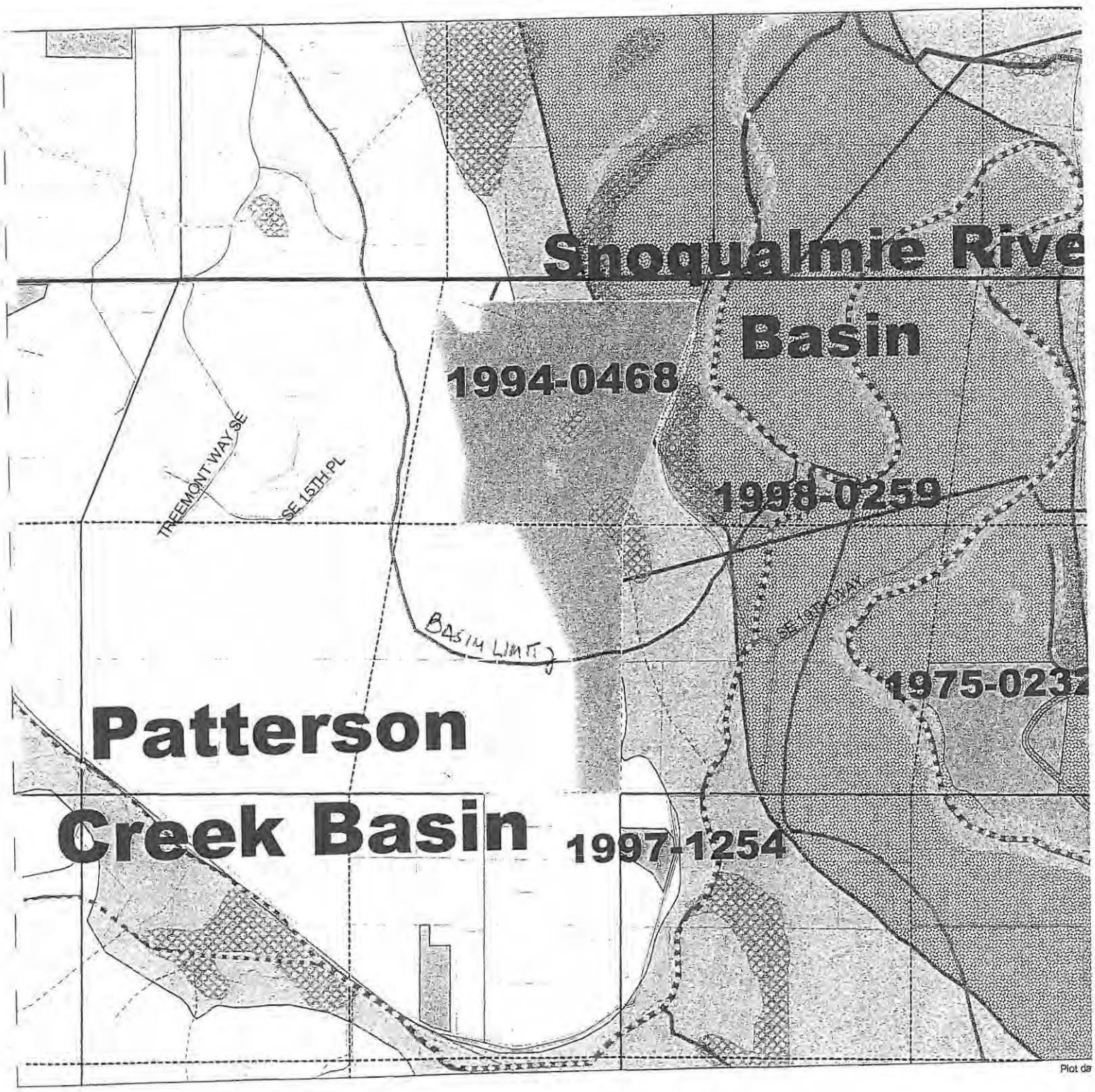
iMap Print Page

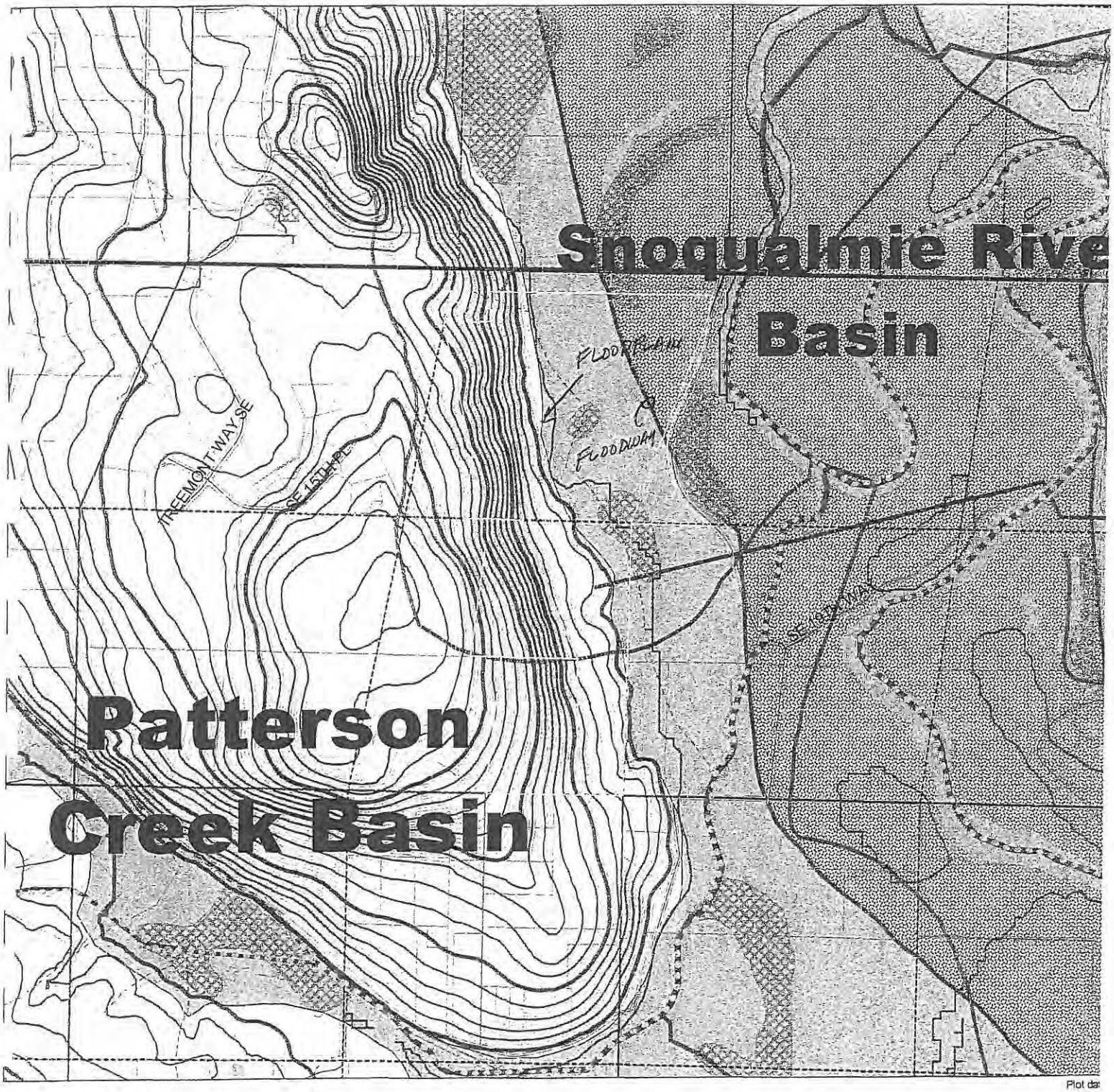




The information included on this map has been compiled by King County staff from a variety of sources and is subject to change without notice.




Snoqualmie Rive
Basin
1994-0468
1998-0259
1975-023
Patterson
Creek Basin
1997-1254
TREEMONT WAY SE
SE 15TH PL
BASIN LIMIT
SE 176TH WAY


Snoqualmie Rive
Basin
FLOODPLAIN
FLOODWAY
TREEMONT WAY SE
SE 15TH PL
SE 92ND AVE
Patterson
Creek Basin

Plot da

- DNRP Drainage Complaints and Studies- A listing of all drainage complaints within the area was received from DDES Records Staff and included herewith. Specific complaints were obtained based on their proximity to and/or location within the study area, as well as their specific dates (note complaints older than 10 years are not included per footnote, page 2-11). A summary table is included below:

Complaint No.	Address	Problem Description	Resolution
1997-1254	2412 Neal Rd	(not in project sub-basin) Water Quality issue not pertinent	N/A
1998-0259	1530 W Sno-qualamie Rd	Water Quality Issue- not pertinent	"
2003-0820	SE 24th	Manure discharge to Creek	Permitted Manure Lagoon overflowed In rain event

King County Water and Land Resources (WLR) Division

201 S Jackson St, Suite 600
Seattle, WA 98104-3855

FAX

Date: 3/22

Number of pages including cover sheet: ____

To: Hal Hagmson

Fax: 206-938-7645
Phone: 938-6168

From: Cindy Torkelson
WLR Stormwater Services Section
Phone: 206-296-1900
Fax Number: 206-296-0192

IMPORTANT LEVEL 1 ANALYSIS NOTE: We do not send copies of certain complaint types that are not relevant such as BCW, FI, FIR, FIH and WQA, and we do not send CL and LS types. See key below. Type S1, S2 and S3 will not be faxed due to size constraints.

The following is a list of complaint types received by the Water and Land Resources Stormwater Services Section. Complaint numbers beginning prior to 1990-XXXX have been archived and are no longer in our possession. They can still be retrieved, if necessary, but will take additional time and may not be beneficial to your research due to their age, development which has occurred, etc. If you are interested in reviewing the actual complaints, they can be pulled (time permitting) for your review. Copies can be obtained for $ .15 per page, and $2.00 per page for plans.

Keys:

Type of Investigation	
C	Action Request
BCW	Business' for Clean Water
CCF	Response to Inquiry
*CL	Claim
EH	Enforcement on Hold
ER	Enforcement Review
PCC,FCR,PCS	Facility Complaints
FI	SWM Fee Inquiry
FIR	SWM Fee Review
FIH	SWM Fee on Hold
*LS	Lawsuit
RR	Facility Engineering Review
NDA	Neighborhood Drainage Assistance
WQC	Water Quality Complaint
WQE	Water Quality Enforcement
WQR	Water Quality Engineering Review
WQA	Water Quality Audit
WQO	Water Quality – Other
S1,S2,SN3	Engineering Studies

Type of Problem	
DCA	Development/Construction
DDM	Drainage - Miscellaneous
DES	Drainage – Erosion/Sedimentation
DLE	Drainage – Landslide/Earth Movement
DTA	Drainage Technical Assistance
INQ	Drainage – General Inquiry
MMA	Maintenance - Aesthetics
MMF	Maintenance - Flooding
MMG	Maintenance - General
MMM	Maintenance - Mowing
MNM	Maintenance – Needs Maintenance
MNW	Maintenance-Noxious Weeds
SWF	SWM Fee Questions
WQB	Water Quality – Best Management Practices
WQD	Water Quality – Dumping
WQI	Water Quality – Illicit Connection
REM	SWM Fee -Remeasurement
GRT	SWM Fee-Grant
NWD	SWM Fee-New Discount

*Subject to Public Disclosure requirements 1. Receipt of written request for documents 2. Review and approval by Prosecuting Attorney's office

King County Water and Land Resources Division - Drainage Services Section

Complaint Search

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Complaint Number	Type Code	Type of Problem	Address of Problem			Comments	Thrus Page
1975-0230	C	FLD	2220		NEAL RD SE Across River	DAMAGE/SNOQUALMIE RIVER	599C1
1975-0231	C	RIP-RAP	2220		NEAL RD SE "	SNOQUALMIE RIVER	599C1
1975-0232	C	EROSION	2220		NEAL RD SE "	SNOQUALMIE RIVER CHANGING COURSE	599C1
1977-0108	C	FLDG	1931		SNOQ RIVER RD		599C1
1978-0115	C		1931		W SNOQ RIVER RD	TRAILER IN FLDPLAIN/LEFT BANK/SNOQ	599C1
1981-0281	C	DRNG	PO BX		I FALL CITY	FIREWOOD & TOP SOIL IN FLD PLAIN	599C1
1989-0014	C	DRNG	31529	SE	40TH ST	(OFF R/W) SYSTEM SILTED	599C1
1989-0014	ER	DRNG	31529	SE	40TH ST	SYSTEM NEEDS SCREEN(OFF R/W).	599C1
1997-1254	WQR	WQA	2412		NEAL RD " " SE		599D2
1998-0259	WQC	CREEK	1530	W	SNOQUALMIE RVRD.. SE		599C1
2003-0820	WQC	WQI	E OF 30		& SE 24TH ST	ALLEGED DISCHARGE OF MANURE INTO	599C2

KING COUNTY WATER AND LAND RESOURCES DIVISION

DRAINAGE INVESTIGATION REPORT

INVESTIGATION REQUEST

Type WQC

PROBLEM: illicit discharge

RECEIVED BY: CT Date: 11/18 OK'd by: FILE No. 2003-0820

Received from: DOE ERTS #537413

NAME: Cindy Callahan DOE NWRO PHONE (Day) 649-7059 (425) Cell (Eve) 949-1555 (206)

ADDRESS: City State Zip

LOCATION OF PROBLEM, IF DIFFERENT: E of 309th ave SE on SE 24th ST

Access Permission Granted ☐ *Call First* (Would Like To Be Present) ☐

11/24 6" pipe in patterson creek. caller suspects manure is being pumped through the pipe

Plat name: Lot No: Block No:

Other agencies involved: No field investigation required

TO BE COMPLETED BY COMPLAINT PROGRAM STAFF

SW 4 24 7

¼ S T R Parcel No. 0424079013 Kroll WP35 Th.Bros: New 599C2

RDP RS Basin PAT Council District 3 City Charge No.

RESPONSE: Citizen notified on 1/16/04 by: EMAIL + PHONE phone letter in person

- SENT AN E-MAIL TO CINDY CALLAHAN (CC:). INFORMING THAT ANY ACTIVITY RELATED TO OPERATION/HANDLING OF MANURE TO BE DISCHARGE TO DAIRY PASTURES WILL BE REFERRED TO NORA MAJA, (MANAGER, LIVESTOCK NUTRIENT MANAGEMENT PROGRAM OF WSDA)

DISPOSITION: Turned to ___ on ___/___/___ by ___ OR: No further action recommended because:

☒ Lead agency has been notified: WASH ST. DEPT OF AGRICULTURE

___ Problem has been corrected. ___ No problem has been identified. ___ Prior investigation addresses problem: SEE FILE # ___

___ Private problem - NDAP will not consider because:

___ Water originates onsite and/or on neighboring parcel.

___ Other (Specify):

DATE CLOSED: 1/16/04 By:

REFD TO DOA

Department of Ecology - Environmental Report Tracking System

Initial Report

ERTS # 537413

External Reference #

Caller Information

	First	Middle	Last
* Name	Cindy		Callahan
Business Name	Ecology NWRO		
Address	425-649-7059		
Other Address			
City, State, Zip		WA	
E-mail			

Confidential ☐

External Ref. #

Phone	Ext	Type
(206) 949-1555		Mobile

Where did it happen

Report #: 57494

Business or Location:	Small Farm		
Address	SE 24th St		
Other Address			
City, State, Zip	FALL CITY	WA	
County, Region	KING	NWRO	FS ID
WRIA #			
Waterway	Patterson Creek	Type	
Latitude		Longitude	
Topo Quad 1:24,000	FALL CITY		

Directions/Landmarks

(mile post, cross roads, township/range)

River mile 31.2 . Located where the creek crosses SE 24th St.

What Happened

Incident Date	11/17/2003
* Received Date	11/17/2003 Time
Medium	SURFACE WATER-FRESH
Material	UNKNOWN
Quantity	Unit
Source	FARM/AGRICULTURE
Cause	OTHER
Activity	UNKNOWN
Impact	POTENTIAL POLLUTION/RELEASE
Vessel Name	Type

Primary Potentially Responsible Party

	First	Middle	Last
Name			
Business Name			
Address			
Other Address			
City			Zip
Phone			
Ext	Type		
E-mail			

Additional Contact Information

Name	Phone	Ext	Type

More Info

Caller reported a six inch pipe crossing the creek. Caller suspects that manure is being pumped through pipe and could be a obstruction in creek. I have notified Bob Pfiefer of WDFW (425-379-2309) (206)

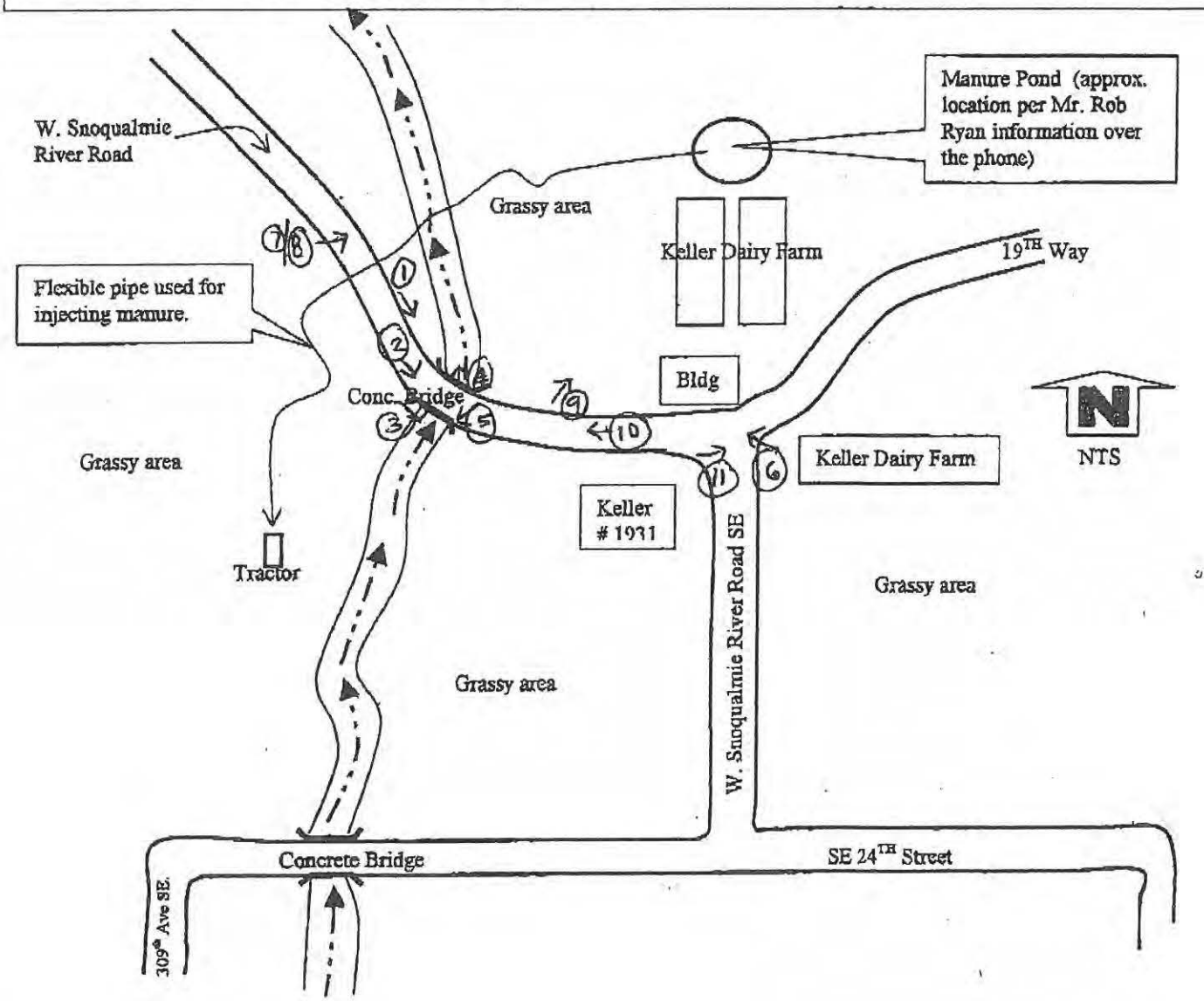
Entry Person: STEGMAN, GREG Entry Date: 11/17/2003

KING COUNTY

DRAINAGE INVESTIGATION REPORT
FIELD INVESTIGATION

NAME: CINDY CALLAHAN/CODE ENFORCE
ADDRESS: DOE-ERTS #537413
PHONE: (425) 649-7059 & Cell: (206) 949-1555
DATE OF INVESTIGATION: 11-25-03 & 12-
INVESTIGATED BY: Virgil Pacampara

I went to the site on 11/24/03 to investigate an illicit discharge at East of 309th Patterson Creek. That the caller suspects manure is being pumped through the pipe. The description of the first location seems does not matched w/ the instruction. I spoke with Cindy Callahan about the complaint. She has some concern: 1) that they injected the manure at rainy season (11/17/03) which is not potential. 2) That heavy storm occurred on the following day (11/18/03). The manure may have been washed-out to Patterson Creek impacting the Salmon bearing creek. 3) That they need to have "HPH permit (hydraulic permit) when using mechanism of injecting manure as per State Fish & Wildlife regulations. That they use flexible pipe attached to tractor out in field and pump to his tractor. It appears that the pipe that was been used for injecting manure was been removed already during the investigation. The group of Callahan has conducted water sample at Patterson creek and result appears negative at the lower creek.
I revisited the site on 12/22/03. I was able to locate the property and residence of Mr. Steve Keller. I used the photographs (send by Miss Callahan) as reference during the re-visit. I spoke to Mr. & Mrs. Keller regarding the complaint on elicit discharged and other concerns of Miss Callahan. The Keller told me that they are conducting the manure injection and other farm activities per regulations. They referred me to Rob Ryan (K Conservation District). He is the contact person for decision & management of the nutrients/ installing manure. Mr. Ryan added that it is usually months of spring for manure application and, added that it was unusual for the Keller to inject during rainy season. It appears that they may have hired contractor to do the injections of manure last 11/17/03.
Mr. Neil Lanning of WS Dept. of Agriculture has informed me that Mr. Rob Ryan contacted him regarding the Keller complaint. Per our phone conversation (w/ Lanning), he told me that they sent-out a letter to different Conservation Districts and to WA. State Dairy Federations about the injections of manure and, it appears that The Keller did not know the letter (send-out by WSDA). See copy of letter on file of this complaint.



STATE OF WASHINGTON

DEPARTMENT OF AGRICULTURE

P.O. Box 42560 • Olympia, Washington 98504-2560 • (360) 902-1800

October 27, 2003

TO: Debbie Becker, Western Washington Conservation Districts
Ron Shavlik, Western Washington NRCS Offices

FROM: Nora Mena, Manager
Livestock Nutrient Management Program

SUBJECT: Lagoons

With the recent record rainfalls many lagoons have captured unusually large amounts of precipitation for this time of year. We understand that there may be some facilities that anticipate that they will not have enough capacity remaining to hold manure and normal precipitation until next spring when applications would normally start up again.

If remaining lagoon capacity is not adequate to avoid over flowing before spring, dairy operators will need to reduce the stored quantities in a manner that avoids any discharge to surface or ground water. One method is to make additional field applications when the chances of runoff is the lowest possible, rather than being put in a position of having to pump during a rain storm in January or February. In working with operators who are concerned over their capacity, we offer the following considerations:

1) Wait until the ground is not saturated and there is only a low chance of significant rainfall that could cause runoff.
2) Increase buffers between application areas and surface waters or ditches to reduce potential for runoff.
3) Apply at low rates – two light applications to the same ground would be better than one heavy application.
4) Pick fields that are well drained, out of flood prone areas and have a crop, such as grass, in place.
5) Soil temperatures below 50 degrees are preferred, particularly in sensitive groundwater areas
6) Target Nov 15 as the last day for field applications.
7) Operators should notify the District or NRCS staff prior to application

In working with operators, the Conservation District or [illegible] operators on these issues:

1) How much needs to be pumped,
2) Appropriate application rates,
3) Fields identified for application,
4) Adequate buffers from ditches, streams, wetlands, etc.,
5) Acceptable days for pumping, and
6) Other site specific requirements that may appropriate.

It will helpful for WSDA staff to be aware of such activity, particularly if we receive complaints about late season applications. Consequently, we would appreciate being notified when these additional applications take place and by whom. Please contact Neil Lanning with a short message stating the dairy name, dairy operators name, and application dates. He can be reached at, nlanning@agr.wa.gov, or at 360-902-2052.

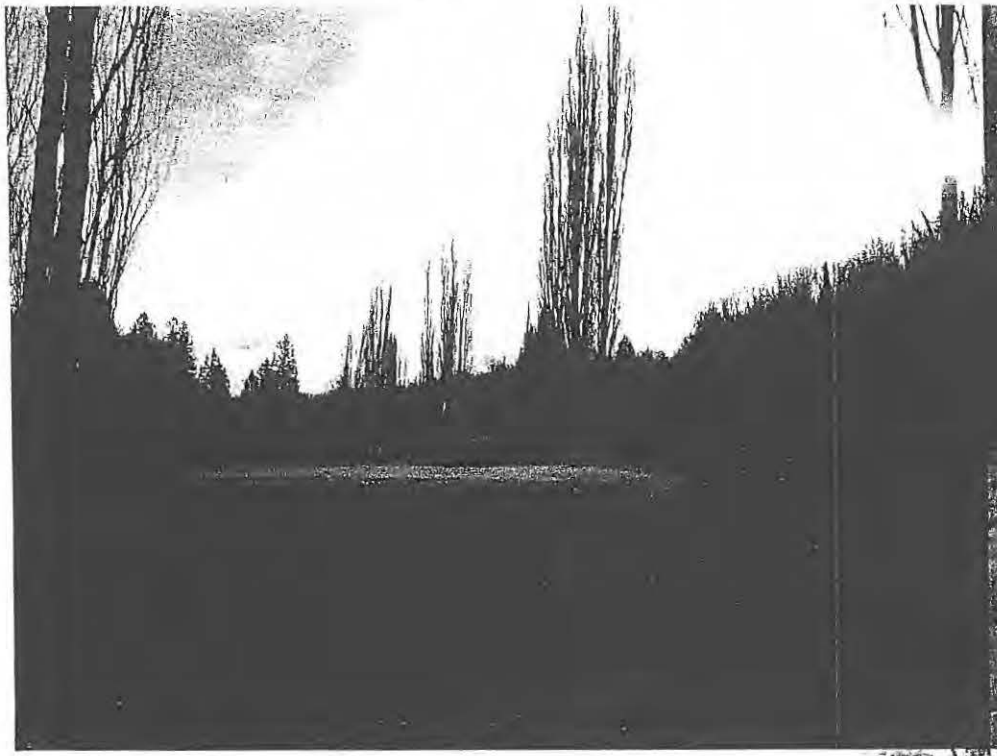
Our conclusions are (1) Continued maintenance of the major culvert and bridge crossings are important to prevent future flooding. (2) Both the Paterson Creek and Snoqualmie Basins are representative of alluvial valley streams, exhibiting characteristics of both aggradation (in flatter areas such as meadows and ponds) and degradation (in steeper gullies and ravines). The normal geomorphology in this environment creates some areas of stream bank erosions, and some areas of localized ponding and flooding. Meeting the storm water flow control and water quality code requirements by directly discharging to the Snoqualamie River before peak flood conditions arise from upstream sources can effectively mitigate impacts from proposed developments.

An offsite Analysis Drainage System Table (98 KCSWM ref 8-B) is included as well as a photo album and photo legend.

Tall Chief Downstream Analysis Photo Index

Photo #	Orientation	Description
1	SW	SE corner from 15th Tee 18" cmp & ditch along S. Prop Line
2	SE	Offsite gully SE of 15th Green
3	N	Erosion on west face of Gully
4	NW	Erosion on West face of Gully
5	S	Typical fairway on back 9 holes, undulating topography
6	NW	Wetland B gully north of 17th Tee
7	N	Wetland B gully north of 17th Tee
8	NE	Wetland B gully north of 17th Tee
9	NE	Panorama 500' S of Clubhouse
10	E	Panorama 500' S of Clubhouse
11	NE	Panorama 200' S of Clubhouse
12	E	Panorama 200' S of Clubhouse
13	S	Panorama from Snoq. River Road near Wetland A
14	SW	"
15	W	"
16	NW	"
17	N	36" CMP into Wetland F under access road
18	E	Wetland E outlet into braided slough ditch @ N prop line
19	N	Slough ditch 200' N of site
20	N	Slough ditch 600' North of site
21	S	Bridge crossing @ slough ditch & E Main St 1700' N of site
22	N	"
23	S	Slough from Snoq. River Road near E Main St.

EROSION
EROSION
18" CMP
(1)
(2)
(3)
(4)



(1)

(13)

(19)

(20)